

PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT APPROACH

NASAfacts

Programmatic National Environmental Policy Act (NEPA) documents are typically used to assess the environmental impacts of proposed policies, plans, programs, or projects for which subsequent actions will be implemented based on the programmatic analyses. Program-wide NEPA compliance allows for greater efficiency in preparing NEPA compliance documentation for individual projects by reducing repetitive analysis. The programmatic document provides the foundation for subsequent specific actions that “tier” from the programmatic document. Tiering allows reference to broad analyses in the programmatic document, thereby streamlining the subsequent NEPA analyses in an efficient manner as a good steward of federal funding.

Programmatic NEPA analyses support planning-level decisions when there are limitations in available information and uncertainty regarding the timing, location, and environmental impacts of subsequent implementing action(s). Since the Mars Sample Return campaign has limitations in available information for some portions of the proposed action, a programmatic analysis is appropriate for those portions of the proposed action. Specifically, the transportation mode for the returned samples (and associated requirements) as well as the type and location of the Sample Return Facility (and associated requirements) are unknown. The analyses for these actions will be broadly discussed in the programmatic document and the specific analyses deferred to the subsequent tiered NEPA document.

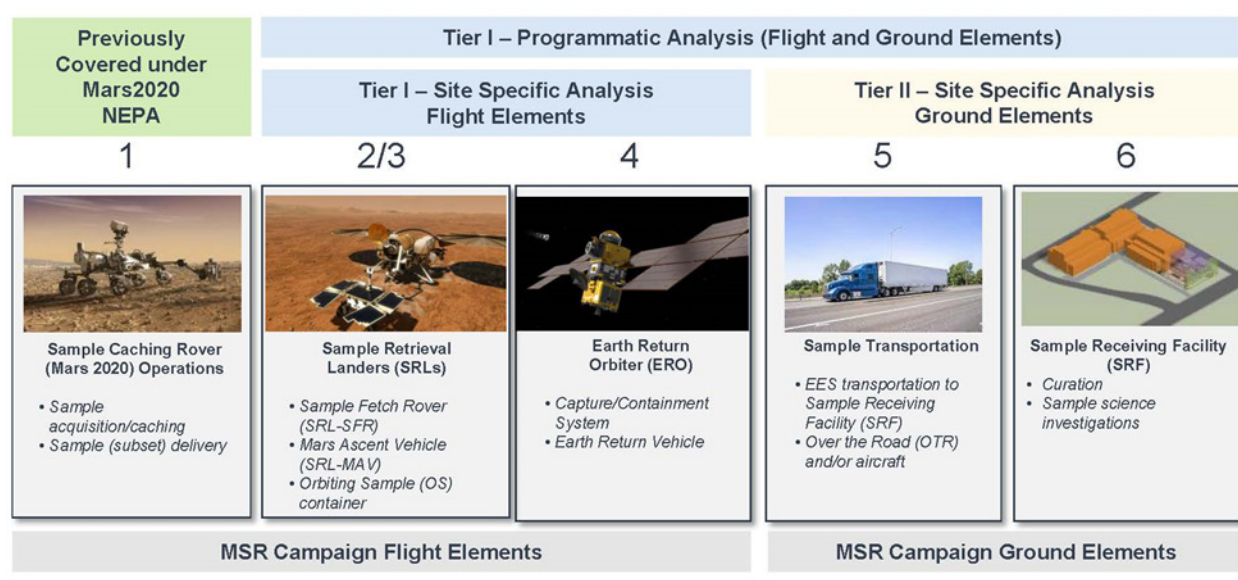
Agencies may prepare a single NEPA document to support both programmatic and project-specific proposals. For the Mars Sample Return campaign, a single NEPA document will be used to support analyses of both programmatic and project-specific aspects of the Proposed Action.

- **Programmatic: Mars Sample Return Flight Elements / Mars Sample Return Ground Elements (see Proposed Action Factsheet)**
- **Project-specific: Mars Sample Return Flight Elements (sample site preparation and sample recovery) at the Utah Test and Training Range (see Recovery Actions Factsheet)**

The proposed Programmatic Environmental Impact Statement for the Mars Sample Return campaign will clearly communicate:

- Purpose and need for the programmatic and subsequent decisions
- Decisions the National Aeronautics and Space Administration (NASA) proposes to make based directly on the Programmatic Environmental Impact Statement
 - Programmatic decision: Return Mars samples to earth for transport and analysis
 - Site-specific decision: Location of landing for returned Mars samples
 - Deferred (tiered) decision: Sample transportation methods and Sample Return Facility location
- Distinguish the analysis of impacts and alternatives of the broad programmatic proposals from project- or site-specific proposals.

The Mars Perseverance Rover was already analyzed in the Supplemental Environmental Impact Statement for the Mars 2020 Mission and therefore, no new analysis is required. The rover is included in the Mars Sample Return Programmatic Environmental Impact Statement to describe the enabling role that it plays in implementing the Mars Sample Return Campaign on the surface of Mars, which was to assemble a returnable cache of samples for possible future return to Earth. Consequently, the programmatic approach for the Mars Sample Return Programmatic Environmental Impact Statement divides the remaining elements of the Mars Sample Return Campaign into two tiers.



Tier I

The Tier I analysis within the context of this EIS includes the following, upon which a decision regarding implementation of the Proposed Action would be documented in a Record of Decision:

Landers

- Launches for routine payloads, Radioisotope Heating Unit (RHU) payloads, and various launch vehicles were previously covered under NASA NEPA, based on launch vehicles and payloads historically used by NASA for other missions. As a result, analysis within this PEIS incorporates these analyses by reference and no new analysis is required for launch activities. Specifically, any Lander launches involving the use of RHUs and routine payloads would fall within the scope of previous NEPA analysis conducted for RHUs Final Programmatic Environmental Assessment for Launches Involving RHUs and NASA Routine Payload Environmental Assessment. More information regarding the engineering behind the landers and associated subcomponents is available at <http://www.jpl.nasa.gov/missions/mars-sample-return-msr>.

Earth Return Orbiter

- Because the launch of the Orbiter is from French Guiana, an area beyond the territorial jurisdiction of the United States, it is addressed under Executive Order 12114, Environmental Effects Abroad of Major Federal Actions. NASA will include it's checklist for compliance with Executive Order 12114 as an appendix to the Mars Sample Return Programmatic Environmental Impact Statement.

Earth Entry System:

- Analysis will include potential impacts and mitigations associated with the return of the EES to Earth once it reaches the atmosphere through landing (to include potential loss of sample containment during return).

Sample Transport

- This includes sample transport (air and road) from the landing site and associated management/physical security. Because specific transportation methods have not yet been identified, this is a component of the programmatic analysis, which would include identification of standards for sample management.

Sample Receiving Facility

- This includes siting, development, and operation of an SRF, as well as management of the samples in a contained environment. Similar to transportation, because re SRF is currently in the planning stages, this is a component of the programmatic analysis; analyses would include potential impacts associated with siting and development in general, as well as identification of standard requirements for operation of such a facility.

Site-specific analysis:

- Mars sample recovery operations at the Utah Test and Training Range including landing area preparation and returned sample containment.

Tier II

Future Tier II analysis would occur after a Record of Decision regarding this Mars Sample Return Programmatic Environmental Impact Statement and would include the following:

- Action-specific analysis of the employment of specific sample transportation methods
- Site-specific analysis of the location and type of sample receiving facility